

REMARKS

Claims 137-139, 141, 142, 144, 148, 149 and 164-177 were previously pending in this application.

Claim 149 has been cancelled. Claims 137, 165, 169, 172, 173 and 177 have been amended. Support for the amendment to claims 137 and 177 can be found in FIGs. 27, 39A, 39B, 44, 45 and 47, and in the specification on page 21 lines 21-24, page 31 lines 18-20, and page 35 lines 3-12. Claims 165, 169, 172 and 173 are amended to correct antecedent basis and accordingly support is found in the claims themselves or in the claims from which they depend. New claims 178 and 179 have been added. Support for new claim 178 can be found in previously pending claims 137 and 165. Support for new claim 179 can be found in previously pending claims 137 and 171.

Claims 137-139, 141, 142, 144, 148 and 164-179 are pending for examination with claims 137 and 177-179 being independent claims.

No new matter has been added.

Rejection under 35 U.S.C. §112

Claims 169, 172 and 173 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Claim 169 is rejected for lack of antecedent basis for “single molecule detection system”. Applicant has amended the claim to recite terms from claim 137. The phrase now has antecedent basis and the claim is definite.

Claims 172 and 173 are rejected for lack of antecedent basis for “the solid support”. Applicant has amended the claims to recite “a solid support”. The claim is now definite.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claim Objection

Applicant acknowledges the Examiner’s determination that claims 165, 171 and 174 are objected to because they depend from a rejected base independent claim. Applicant has rewritten claims 165 and 171 into new independent claims 178 and 179. Accordingly,

independent claims 178 and 179 should be allowable as not being rejected in view of the cited art.

Rejection under 35 U.S.C. §102

Claims 137-139, 141, 142, 148, 164, 166-168, 170, 175 and 176 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,988,617 to Landegren et al.

Landegren et al. teaches a method for detecting a polymer by binding and ligating two probes to a polymer. The probes are referred to as the target probe and the adjacent probe. The target probe is labeled with biotin while the adjacent probe is labeled with a detectable label. After binding to the polymer, the target probe is ligated to the adjacent probe provided the 3' sequence of the target probe is complementary to the polymer being detected. Once ligated, the probe/polymer complex is denatured and the ligated probe product is captured on a biotin binding support and analyzed for the presence of the detectable label separately from the polymer. If the 3' sequence is not complementary to the polymer, no ligation occurs, and a biotinylated target probe that is not detectably labeled is captured. The method requires denaturation and separation of the probes from the polymer, since only when the probes are separate from the polymer is it possible to determine if they are ligated to each other.

The claimed invention detects a mutant polymer via detection of a complex of the polymer with at least two probes (i.e., unit specific markers) bound thereto. The probes are detected while they are bound to the polymer. For at least this reason, the claims are not anticipated by Landegren et al. Notwithstanding the foregoing, however, Applicant has amended claim 137 to recite that the probes are not ligated to each other. Support for this amendment can be found at least in FIGs. 39A, 39B, 44 and 45 (particularly as compared to FIG. 46). The claims are therefore not anticipated by Landegren et al.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 137-139, 141, 142, 144, 148, 149, 164, 166-168, 170, 172, 173 and 175-177 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Application Publication No. US-2003-0129611 to Bao et al.

Bao et al. teaches detecting nucleic acids using dual nucleic acid probes that undergo energy transfer between themselves once bound to the nucleic acid target. One probe contains an energy transfer donor moiety, while the other contains an energy transfer acceptor moiety. Hybridization of both probes is detected via emission from the acceptor moiety.

Claim 149 has been cancelled. Claims 137 and 177 have been amended to recite “detecting two separate and distinguishable signals from the first and second detectable labels”. Support for this amendment can be found in FIGs. 27 (showing a plurality of detectors), 39A, 39B, 44, 45, 47 (as compared to FIGs. 48A and 48B), and in the specification on page 21 lines 21-24, page 31 lines 18-20, and page 35 lines 3-12. The instant claims require detection of two separate and distinguishable signals, one from each of the unit specific markers bound to the polymer. Claims 137 and 177 and their dependent claims, as amended, are not anticipated by Bao et al.

Reconsideration and withdrawal of the rejection is respectfully requested.

Rejection under 35 U.S.C. §103

Claim 169 is rejected under 35 U.S.C. §103(a) as being unpatentable over Bao et al.

Bao et al. has been discussed above. Claim 169 depends from claim 137 which as now amended explicitly recites that two separate and distinguishable signals are detected from the at least two unit specific markers bound to the polymer. Bao et al. detects binding of two probes by emission from only one of those probes and thus Bao et al. detects only a single signal. Claim 1 as amended is not rendered obvious by Bao et al. and therefore neither is claim 169.

Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

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If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,



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